

*R3*

22. (Amended) [A] An isolated mutant human aspartoacylase having either an altered ability to hydrolyze N-acetyl-aspartic acid to aspartate and acetate, as compared with a normal human aspartoacylase, or incapable of hydrolyzing N-acetyl-aspartic acid to aspartate and acetate, and having the amino acid sequence SEQ ID NO: 2, except for said mutation, which is

E285 > A,

Y231 > X, and/or

A305 > E,

or an allelic variant of said mutant aspartoacylase.

*A4*

24. (Amended) A mutant aspartoacylase of claim [23] 22, wherein the glutamic acid at amino acid position 285 is substituted by alanine.

*Please add the following new claims:*

66. (New) A fragment of a mutant human aspartoacylase of claim 22, comprising an aspartoacylase epitope.

*X*

67. (New) A recombinant normal human aspartoacylase capable of hydrolyzing N-acetyl aspartic acid to aspartate and acetate, having an amino acid sequence which has a sequence identity of at least 95% to the sequence of SEQ ID NO: 2.

68. (New) A fragment of a recombinant normal human aspartoacylase of claim 20, comprising an aspartoacylase epitope.

69. (New) A pharmaceutical composition, comprising an isolated normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, and a pharmaceutically acceptable carrier.

70. (New) An isolated normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, which is free of other cellular components.

71. (New) An isolated normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, which is free of other human proteins.

72. (New) A preparation which consists essentially of a normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof.

73. (New) An isolated normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, in a concentration which can be administered to a patient at a dosage of 0.1 to 100 U/kg.

74. (New) A normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, produced by

(a) culturing a host cell transformed with a vector comprising a DNA which encodes for a normal human aspartoacylase of claim 20 in a cell culture medium under conditions whereby the aspartoacylase is expressed, and

(b) isolating the thus-produced normal aspartoacylase.

75. (New) A normal human aspartoacylase having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof, produced in a bacterium, a fungus, or a non-human mammalian cell.

76. (New) An immunologically active anti-aspartoacylase polyclonal or monoclonal antibody specific for an aspartoacylase polypeptide of claim 20.

77. (New) An immunologically active anti-aspartoacylase polyclonal or monoclonal antibody specific for an aspartoacylase polypeptide of claim 22.

78. (New) A hybridoma producing a moloclonal antibody specific for an aspartoacylase polypeptide of claim 20.

79. (New) A hybridoma producing a moloclonal antibody specific for an aspartoacylase polypeptide of claim 22.

80. (New) A recombinant normal human aspartoacylase capable of hydrolyzing N-acetyl aspartic acid to aspartate and acetate, having the amino acid sequence SEQ ID NO: 2, or a polymorphic form thereof.

81. (New) A normal human aspartoacylase polypeptide purified to homogeneity and capable of hydrolyzing N-acetyl-aspartic acid to aspartate and acetate.

82. (New) The aspartoacylase of claim 81 having SEQ ID NO: 2.